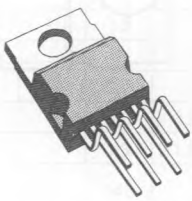
TV VERTICAL DEFLECTION OUTPUT CIRCUIT

- POWER AMPLIFIER
- FLYBACK GENERATOR
- THERMAL PROTECTION



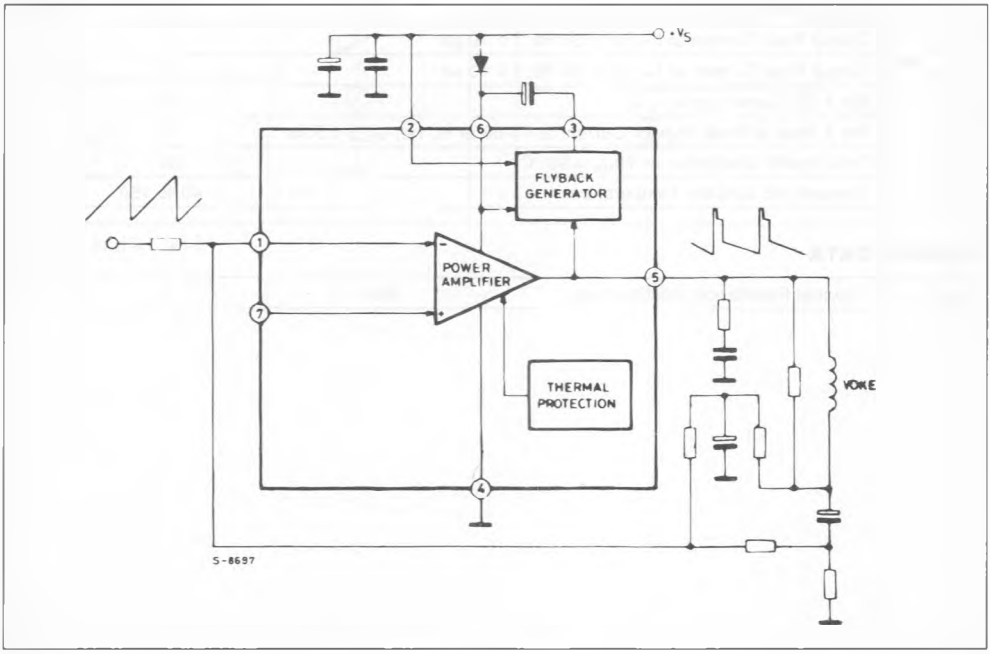
Heptawatt

ORDER CODE : TDA8172

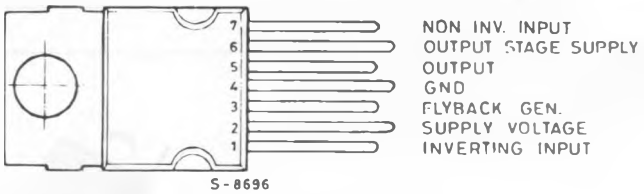
DESCRIPTION

The TDA8172 is a monolithic integrated circuit in HEPTAWATT® package. It is a high efficiency power booster for direct driving of vertical windings of TV yokes. It is intended for use in Color and B & W television as well as in monitors and displays.

BLOCK DIAGRAM



CONNECTION DIAGRAM (top view)



Tab connected to pin 4

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_S	Supply Voltage (pin 2)	35	V
V_5, V_6	Flyback Peak Voltage	60	V
V_3	Voltage at Pin 3	$+ V_S$	
V_1, V_7	Amplifier Input Voltage	$+ V_S$ $- 0.5$	V
I_o	Output Peak Current (non repetitive, t = 2 ms)	2.5	A
I_o	Output Peak Current at f = 50 or 60 Hz, $t \leq 10$ µs	3	A
I_o	Output Peak Current at f = 50 or 60 Hz, $t > 10$ µs	2	A
I_3	Pin 3 DC Current at $V_5 < V_2$	100	mA
I_3	Pin 3 Peak to Peak Flyback Current at f = 50 or 60 Hz, $t_{fly} \leq 1.5$ ms	3	A
P_{tot}	Total Power Dissipation at T_{case} = 90 °C	20	W
T_{stg}, T_j	Storage and Junction Temperature	– 40 to 150	°C

THERMAL DATA

$R_{th\ j\text{-}case}$	Thermal Resistance Junction-case	Max	3	°C/W

ELECTRICAL CHARACTERISTICS

(refer to the test circuits, V_s = 35 V, T_{amb} = 25 °C unless otherwise specified)

Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit	Fig.
I_2	Pin 2 Quiescent Current	I_3 = 0	I_5 = 0		8	16	mA	1a
I_6	Pin 6 Quiescent Current	I_3 = 0	I_5 = 0		16	36	mA	1a
I_1	Amplifier Input Bias Current	V_1 = 1 V V_1 = 2 V	V_7 = 2 V V_7 = 1 V		− 0.1 − 0.1	− 1 − 1	µA	1a
V_{3L}	Pin 3 Saturation Voltage to GND	I_3 = 20 mA			1	1.5	V	1c
V_5	Quiescent Output Voltage	V_s = 35V	R_a = 39 kΩ		18		V	1d
V_{5L}	Output Saturation Voltage to GND	I_5 = 1.2 A			1	1.4	V	1c
		I_5 = 0.7 A			0.7	1	V	1c
V_{5H}	Output Saturation Voltage to Supply	− I_5 = 1.2 A			1.6	2.2	V	1b
		− I_5 = 0.7 A			1.3	1.8	V	1b
T_j	Junction Temperature for Thermal Shut Down				140		°C	

Figure 1 : DC Test Circuits.

Figure 1 a : Measurement of I_1 ; I_2 ; I_6.

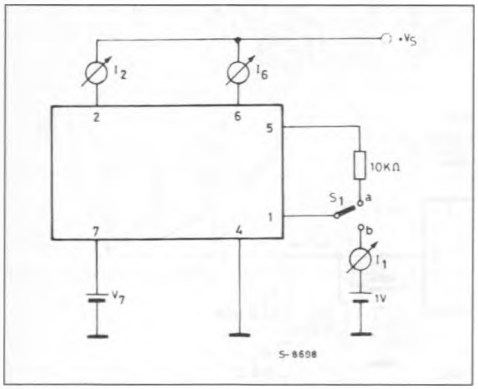
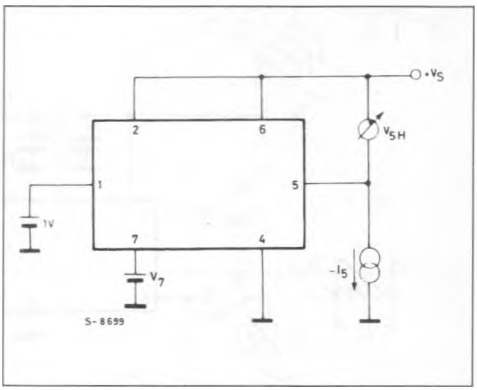


Figure 1 b : Measurement of V_{5H}.



S_1 : (a) I_2 and I_6 ; (b) I_1

Figure 1 c : Measurement of V_{3L} ; V_{5L}.

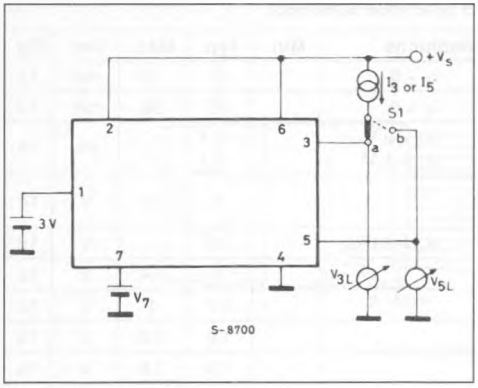
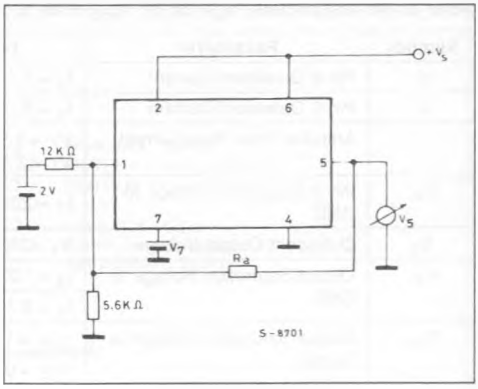
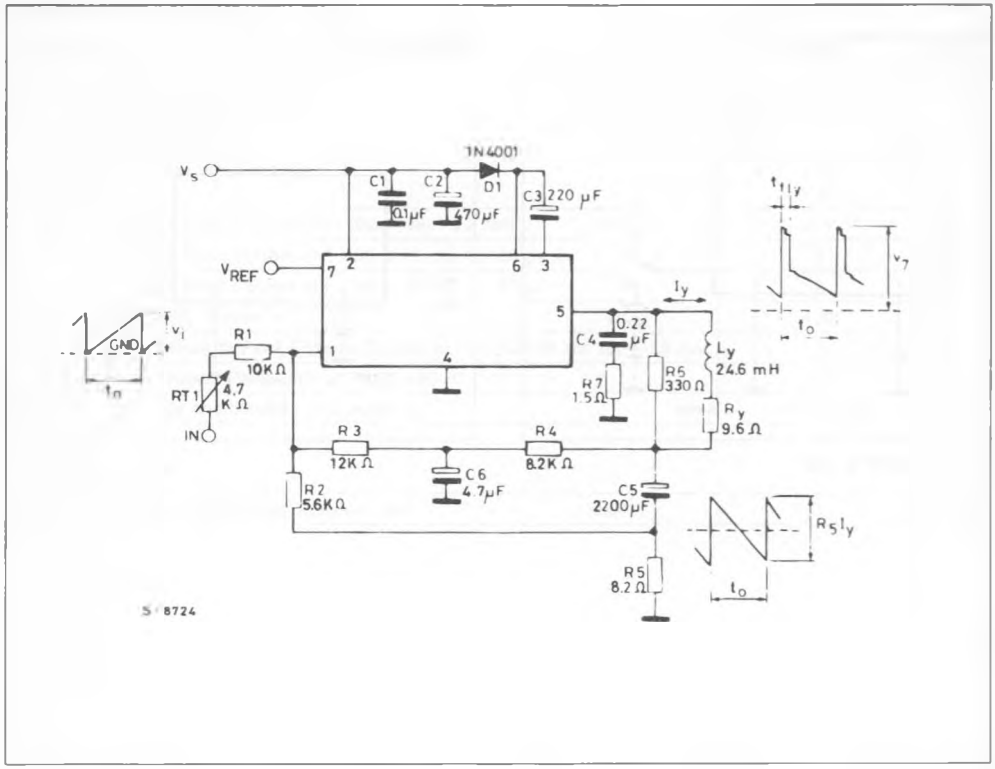


Figure 1 d : Measurement of V_5.



S_1 : (a) V_{3L} ; (b) V_{5L}

Figure 2 : AC Test Circuit.



MOUNTING INSTRUCTIONS

The power dissipated in the circuit must be removed by adding an external heatsink.

Thanks to the HEPTAWATT™ package attaching the heatsink is very simple, a screw a compression spring (clip) being sufficient.

Between the heatsink and the package it is better to insert a layer of silicon grease, to optimize the thermal contact ; no electrical isolation is needed between the two surfaces.

Figure 3 : Mounting Examples.